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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,615	03/16/2004	Raymond J. Cho	27763-703.301	4568

21971 7590 02/19/2010

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EXAMINER	
LOVEL, KIMBERLY M	

ART UNIT	PAPER NUMBER
2167	

MAIL DATE	DELIVERY MODE
02/19/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,615	CHO ET AL.	
	Examiner	Art Unit	
	KIMBERLY LOVEL	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,6-9,12-18,20-26 and 35-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4, 6-9, 12-18, 20-26 and 35-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This communication is in response to the Amendment filed 20 October 2009.

2. Claims 4, 6-9, 12-18, 20-26 and 35-59 are currently pending. In the Amendment filed 20 October 2009, claims 1, 12 and 37 are amended, claims 1-3, 5, 10, 11, 19 and 27-34 are canceled and claims 51-59 are new. This action is made Final.

3. The rejection of previous prior art rejections have been withdrawn as necessitated by Amendment.

Claim Objections

4. The objections to claims 11 and 12 are withdrawn as necessitated by Amendment.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4, 6, 7, 9, 12-14, 18, 20-24, 37-43, 46-48, 54, 55 and 57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,263,335 to Paik et al (hereafter Paik) in view of US Patent No 6,598,043 to Baclawski (hereafter Baclawski) in view of the article "The Knowledge Model of Protégé-2000:

Combining Interoperability and Flexibility" to Noy et al (hereafter Noy) in view of the article "Object Role Modeling (ORM/NIAM) to Halpin (hereafter Halpin).

Referring to claim 4, Paik discloses a method for constructing a knowledge representation, the method comprising the steps of:

selecting articles [raw documents] to serve as information sources for the knowledge representation [knowledge base], wherein the selected articles are stored on a computer (see column 9, lines 38-60);

extracting information contained in the articles including facts expressed in an article's natural language [concept-relation-concept triple] (see column 9, line 38 – column 10, line 4 and column 10, lines 35-39);

formatting the facts for storage in the knowledge representation [the KR Format Applier uses KR Format Guideline 112 as a Knowledge base by converting CRCs to a format which can be accepted by the KR scheme] (see column 21, lines 13-27); and

storing the formatted facts in the knowledge representation [indexed and stored in a KR database 115] (see column 9, lines 38 – column 10, line 4).

While Paik discloses the translation of CRC's to a Knowledge Representation (KR) scheme through the use of a KR Format Guideline 112 as a knowledge base by converting the CRCs to a format which can be accepted by the KR scheme (see column 21, lines 13-27), Paik fails to explicitly disclose the further limitations wherein the facts are formatted for storage according to an ontology comprising classes and individuals; verifying that the information facts extracted from the selected articles are correct; and verifying that the facts extracted from the selected articles are placed in the correct

format for storage in the knowledge representation. Baclawski discloses the generation of a knowledge representation from an information source (see column 5, lines 42-50), including the further limitation of the facts are formatted for storage according to an ontology [the knowledge extractor 102 may also use an ontology 104 to assist in the knowledge extraction process; the graph structures that represent the knowledge representations conform to an ontological data model that determines the kinds of components and attribute values that are allowed] (see column 5, 47-52 and column 6, lines 22-28) and storing the formatted facts in the knowledge representation [generation of a knowledge representation] (see column 5, 47-52 and column 6, lines 22-28).

It would have been obvious to one of ordinary skill in the art to utilize an ontology as disclosed by Baclawski to format the CRCs disclosed by Paik. One would have been motivated to do so since the CRCs disclosed by Paik conform to a data model when stored and an ontology is merely a data model at the domain level (Baclawski: see column 2, lines 28-47).

While the combination of Paik and Baclawski (hereafter Paik/Baclawski) discloses the use of an ontology, Paik/Baclawski fails to explicitly disclose wherein the ontology comprises classes and individuals. Noy discloses a frame-based system with an ontology (see abstract and Section 2: Protégé-2000 Knowledge Model), including the further limitation wherein the ontology comprises classes [classes] and individuals [instances] (Section 2: Protégé-2000 Knowledge Model and Section 2.1: Classes and Instances).

It would have been obvious to one of ordinary skill in the art to apply the components of an ontology as described in Noy to the ontology of Paik/Baclawski. One would have been motivated to do so since it is well-known in the art that classes and individuals are basic components that make up an ontology.

While the combination of Paik/Baclawski and Noy (hereafter Paik/Baclawski/Noy) discloses that the knowledge representation 206 may be presented to the user for editing and modification and for confirmation of the form of the knowledge representation (Baclawski: see column 7, lines 13-19), Paik/Baclawski/Noy fails to explicitly disclose the further limitations of verifying that the information facts extracted from the selected articles are correct; and verifying that the facts extracted from the selected articles are placed in the correct format for storage in the knowledge representation. Halpin discloses the concept of object-role modeling, which is the storage of concepts as objects and the roles that the objects play (see page 1, Section 1.1: ORM: what is it and why we use it?), including the further limitations of

verifying that the information facts extracted from the selected articles are correct [as a quality check at Step 1, we can ensure that objects are well identified] (see page 6, 2nd paragraph); and

verifying that the facts extracted from the selected articles are placed in the correct format for storage in the knowledge representation [as a second quality check at step 1] (see page 6, 3rd paragraph).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the quality checking steps disclosed by Halpin in order to verify the

facts extracted and stored by Paik/Baclawski/Noy. One would have been motivated to do so in order to determine the accuracy of the rules for extraction and thereby increase the ability to provide accurate information to a user.

Referring to claim 6, the combination of Paik/Baclawski/Noy and Halpin (hereafter Paik/Baclawski/Noy/Halpin) discloses the method of claim 48 wherein both the extracting step and verifying step are performed by the same person, which person [expert] has been qualified by a predetermined procedure to perform both steps simultaneously (Halpin: page 6, see paragraphs 2-5).

Referring to claim 7, Paik/Baclawski/Noy/Halpin discloses the method of claim 4 wherein at least the steps of extracting and verifying occur in geographically separated locations (Halpin: page 6, see paragraphs 2-5).

Referring to claim 9, Paik/Baclawski/Noy/Halpin discloses the method of claim 4, wherein the extracting information step includes using a computer-driven parser [syntactic parser] of natural language (Paik: see column 9, lines 53-60).

Referring to claim 12, Paik discloses a system for extracting information from articles originating from a first database and storing the extracted information in a second database, the system comprising:

an information extractor [Extractor 105] that extracts a finding from an article's natural language and translates this finding into a structured finding for storage, wherein the information extractor is an application program (see column 9, line 38 – column 10, line 4 and column 10, lines 35-39); and

formatting the facts for storage in the second database for storage in the second database [the KR Format Applier uses KR Format Guideline 112 as a Knowledge base by converting CRCs to a format which can be accepted by the KR scheme] (see column 9, line 38 – column 10, line 4 and column 21, lines 13-27);

a computer system in communication with the second database for storing the structured finding in the second database [indexed and stored in a KR database 115] (see column 9, lines 38 – column 10, line 4).

While Paik discloses the translation of CRC's to a Knowledge Representation (KR) scheme through the use of a KR Format Guideline 112 as a knowledge base by converting the CRCs to a format which can be accepted by the KR scheme (see column 21, lines 13-27), Paik fails to explicitly disclose the further limitations wherein the facts are formatted for storage according to an ontology comprising classes and individuals; verifying that the information facts extracted from the selected articles are correct; and verifying that the facts extracted from the selected articles are placed in the correct format for storage in the knowledge representation. Baclawski discloses the generation of a knowledge representation from an information source (see column 5, lines 42-50), including the further limitation of the facts are formatted for storage according to an ontology [the knowledge extractor 102 may also use an ontology 104 to assist in the knowledge extraction process; the graph structures that represent the knowledge representations conform to an ontological data model that determines the kinds of components and attribute values that are allowed] (see column 5, 47-52 and column 6,

lines 22-28) and storing the formatted facts in the knowledge representation [generation of a knowledge representation] (see column 5, 47-52 and column 6, lines 22-28).

It would have been obvious to one of ordinary skill in the art to utilize an ontology as disclosed by Baclawski to format the CRCs disclosed by Paik. One would have been motivated to do so since the CRCs disclosed by Paik conform to a data model when stored and an ontology is merely a data model at the domain level (Baclawski: see column 2, lines 28-47).

While the combination of Paik and Baclawski (hereafter Paik/Baclawski) discloses the use of an ontology, Paik/Baclawski fails to explicitly disclose wherein the ontology comprises classes and individuals. Noy discloses a frame-based system with an ontology (see abstract and Section 2: Protégé-2000 Knowledge Model), including the further limitation wherein the ontology comprises classes [classes] and individuals [instances] (Section 2: Protégé-2000 Knowledge Model and Section 2.1: Classes and Instances).

It would have been obvious to one of ordinary skill in the art to apply the components of an ontology as described in Noy to the ontology of Paik/Baclawski. One would have been motivated to do so since it is well-known in the art that classes and individuals are basic components that make up an ontology.

Paik/Baclawski/Noy fails to explicitly disclose the further limitation of a content reviewer in communication with the information extractor for verifying whether the structured finding has been properly formatted for storage in the second database, wherein the content reviewer is an application program. Halpin discloses the concept of

object-role modeling, which is the storage of concepts as objects and the roles that the objects play (see page 1, Section 1.1: ORM: what is it and why we use it?), including the further limitation of a content reviewer in communication with the information extractor for verifying whether the structured finding has been properly formatted for storage in the second database, wherein the content reviewer is an application program] (see page 6, 3rd paragraph).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the quality checking steps disclosed by Halpin in order to verify the facts extracted and stored by Paik/Baclawski/Noy. One would have been motivated to do so in order to determine the accuracy of the rules for extraction and thereby increase the ability to provide accurate information to a user.

Referring to claim 13, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, further comprising a query management and information display unit for responding to user inquiries for information stored in the second database and for retrieving information from the second database in response to those queries (Paik: see column 4, line 64 – column 5, line 2).

Referring to claim 14, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, wherein the second database is frame-based (Paik: see column 6, lines 48-54; Noy: see Section 2: Protégé-2000 Knowledge Model).

Referring to claim 18, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, wherein the finding is derived from one or more sentences, a portion of a sentence,

a diagram, figure or table (Paik: see column 9, lines 53-60 – raw text document; and Halpin: see page 5, Table 2 - table).

Referring to claim 20, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, wherein the first database [knowledge base] is coupled to, and in communication with the information extractor (Paik: see Fig 1).

Referring to claim 21, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, further including a server, for selecting articles [raw documents] for information extraction from among a plurality of articles residing in the first database (Paik: see column 9, lines 53-60).

Referring to claim 22, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, wherein the article's representation of the finding has a first format and wherein the translation of the finding includes a translation of the finding into a natural language having a second format (Paik: see column 9, line 61 – column 10, line 4).

Referring to claim 23, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, wherein information is extracted using a user template [database template] (see Paik: column 2, lines 51-67).

Referring to claim 24, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, wherein information is extracted using a computer driven parser [syntactic parser] of natural language (Paik: see column 9, lines 53-60).

Referring to claim 37, Paik discloses a system comprising:

a) a server configured to:

1) select an article [raw documents] from a database for extraction (see column 9, lines 38-60);

2) assign an article to an information extractor [CRC extractor 105] for extraction of information from an article [concept-relation-concept triple] (see column 9, line 38 – column 10, line 4 and column 10, lines 35-39); and

3) receive information extracted by information extractor (see column 9, line 38 – column 10, line 4)

b) an information store [KR database 115] for storing the extracted information (see column 9, line 38 – column 10, line 4).

While Paik discloses the translation of CRC's to a Knowledge Representation (KR) scheme through the use of a KR Format Guideline 112 as a knowledge base by converting the CRCs to a format which can be accepted by the KR scheme (see column 21, lines 13-27), Paik fails to explicitly disclose the further limitations wherein the facts are formatted for storage according to an ontology comprising classes and individuals; verifying that the information facts extracted from the selected articles are correct; and verifying that the facts extracted from the selected articles are placed in the correct format for storage in the knowledge representation. Baclawski discloses the generation of a knowledge representation from an information source (see column 5, lines 42-50), including the further limitation of the facts are formatted for storage according to an ontology [the knowledge extractor 102 may also use an ontology 104 to assist in the knowledge extraction process; the graph structures that represent the knowledge representations conform to an ontological data model that determines the kinds of

components and attribute values that are allowed] (see column 5, 47-52 and column 6, lines 22-28) and storing the formatted facts in the knowledge representation [generation of a knowledge representation] (see column 5, 47-52 and column 6, lines 22-28).

It would have been obvious to one of ordinary skill in the art to utilize an ontology as disclosed by Baclawski to format the CRCs disclosed by Paik. One would have been motivated to do so since the CRCs disclosed by Paik conform to a data model when stored and an ontology is merely a data model at the domain level (Baclawski: see column 2, lines 28-47).

While Paik/Baclawski discloses the use of an ontology, Paik/Baclawski fails to explicitly disclose wherein the ontology comprises classes and individuals. Noy discloses a frame-based system with an ontology (see abstract and Section 2: Protégé-2000 Knowledge Model), including the further limitation wherein the ontology comprises classes [classes] and individuals [instances] (Section 2: Protégé-2000 Knowledge Model and Section 2.1: Classes and Instances).

It would have been obvious to one of ordinary skill in the art to apply the components of an ontology as described in Noy to the ontology of Paik/Baclawski. One would have been motivated to do so since it is well-known in the art that classes and individuals are basic components that make up an ontology.

Paik/Baclawski/Noy fails to explicitly disclose the further limitations of 4) assign the article and extracted information to a content reviewer; and 5) receive corrections to extracted information from the content reviewer. Halpin discloses information to be structured into at least an object, process and a relationship between the object and

process object that are related by a process [objects that play roles] (see page 1, Section 1.1: ORM: what is it and why we use it?); 4) assign the article and extracted information to a content reviewer [quality check] (page 6, paragraphs 2-5); and 5) receive corrections to extracted information from the content reviewer (page 6, paragraphs 2-5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the quality checking steps disclosed by Halpin in order to verify the CRC triples extracted and stored by Paik/Baclawski/Noy. One would have been motivated to do so in order to determine the accuracy of the rules for extraction and thereby increase the ability to provide accurate information to a user.

Referring to claim 38, Paik/Baclawski/Noy/Halpin discloses the system of claim 37, further comprising the server configured to: 1) assign the article to an information model structure reviewer; 2) receive changes or updates to information model structure from the information model structure reviewer; and 3) store changes or updates to information model structure in the information store (Halpin: see page 6, paragraphs 2-6).

Referring to claim 39, Paik/Baclawski/Noy/Halpin discloses the system of claim 37, wherein the information extraction process and content review process are performed at different geographical sites (Halpin: page 6, see paragraphs 2-5).

Referring to claim 40, Paik/Baclawski/Noy/Halpin discloses the system of claim 37, wherein the server is further configured to receive information about quality control metrics (Halpin: see page 6, paragraphs 2-6).

Referring to claim 41, Paik/Baclawski/Noy/Halpin discloses the system of claim 40, wherein the server is further configured to store information about quality control metrics in the information store (Halpin: see page 6, paragraphs 2-6).

Referring to claim 42, Paik/Baclawski/Noy/Halpin discloses the system of claim 37, wherein the server is further configured to comprise a query management and information display unit for responding to user inquiries for information stored in the information store and for retrieving information from the information store in response to those queries (Paik: see column 4, line 64 – column 5, line 2).

Referring to claim 43, Paik/Baclawski/Noy/Halpin discloses the system of claim 37, wherein the information store is frame-based (Paik: see column 6, lines 48-54; Noy: see Section 2: Protégé-2000 Knowledge Model).

Referring to claim 46, Paik/Baclawski/Noy/Halpin discloses the system of claim 37, wherein the structured information is derived from one or more sentences, a portion of a sentence, a diagram, figure or table (Paik: see column 9, lines 53-60 – raw text document; and Halpin: see page 5, Table 2 - table).

Referring to claim 47, Paik/Baclawski/Noy/Halpin discloses the system of claim 37, wherein the information store includes an ontology (Paik: see Table 3; and Baclawski: see column 5, 47-52 and column 6, lines 22-28).

Referring to claim 48, Paik/Baclawski/Noy/Halpin discloses the method of claim 4, wherein the extracting information step is performed by knowledge extraction personnel and the verifying step is performed by quality control personnel (Halpin: page 6, see paragraphs 2-5).

Referring to claim 54, Paik/Baclawski/Noy/Halpin discloses the method of claim 4, wherein the finding is derived from one or more sentences, a portion of a sentence, a diagram, figure or table (Paik: see column 9, lines 53-60 – raw text document; and Halpin: see page 5, Table 2 - table).

Referring to claim 55, Paik/Baclawski/Noy/Halpin discloses The method of claim 4, wherein the information is extracted using a template [database template] (see Paik: column 2, lines 51-67).

Referring to claim 57, Paik/Baclawski/Noy/Halpin discloses the method of claim 4, wherein the ontology further comprises slots, relations or facets [ontology consists of classes, slots, facets, and axioms] (Noy: see Section 2: Protégé-2000 Knowledge Model, lines 2-5).

Referring to claim 58, Paik/Baclawski/Noy/Halpin discloses the system of claim 12, wherein the ontology further comprises slots, relations or facets [ontology consists of classes, slots, facets, and axioms] (Noy: see Section 2: Protégé-2000 Knowledge Model, lines 2-5).

Referring to claim 59, Paik/Baclawski/Noy/Halpin discloses the system of claim 37, wherein the ontology further comprises slots, relations or facets [ontology consists of classes, slots, facets, and axioms] (Noy: see Section 2: Protégé-2000 Knowledge Model, lines 2-5).

7. **Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,263,335 to Paik et al in view of US Patent No 6,598,043 to Baclawski in view of the article "The Knowledge Model of Protégé-2000: Combining Interoperability and Flexibility" to Noy et al in view of the article "Object Role Modeling (ORM/NIAM) to Halpin as applied to claim 7 above and further in view of US PGPub 2002/0165737 to Mahran (hereafter Mahran).**

Referring to claim 8, while Paik/Baclawski/Noy/Halpin discloses geographically separate locations, Paik/Baclawski/Noy/Halpin fails to disclose the further limitation wherein the locations are chosen based upon the cost of performing the respective steps of extracting and verifying, the lowest cost location for each step being selected. Mahran discloses geographically separate locations are chosen based upon the cost of performing the respective steps of extracting and verifying, the lowest cost location for each step being selected (see [0115]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the calculations disclosed by Mahran with the data of Paik/Baclawski/Noy/Halpin. One would have been motivated to do so in order to decrease the cost of operating the system.

8. Claims 15-17, 25, 26, 35, 36, 44, 45, 49-53 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,263,335 to Paik et al (hereafter Paik) in view of US Patent No 6,598,043 to Baclawski (hereafter Baclawski) in view of the article "The Knowledge Model of Protégé-2000:

Combining Interoperability and Flexibility" to Noy et al (hereafter Noy) in view of the article "Object Role Modeling (ORM/NIAM) to Halpin as applied to claim 4 above, and further in view of the article "Sentence Analysis by Case-Based Reasoning" to Chakkour et al (hereafter Chakkour).

Referring to claims 15 and 44, Paik/Baclawski/Noy/Halpin fails to explicitly disclose the further limitation wherein the structured finding is formatted according to a fact-based model Chakkour discloses extracting information contained in articles [scientific texts] including facts expressed in an article's natural language [natural language processing], including the further limitation wherein the structured finding is formatted according to a fact-based model (Chakkour: see Section 2: From Syntactic to Conceptual Analysis).

It would have been obvious to one of ordinary skill in the art to select articles in which to extract facts and to store the facts disclosed by Chakkour in the manner applied to the concept-relation-concept triples disclosed by Paik/Baclawski/Noy/Halpin. One would have been motivated to do so in order to form a knowledge base in which information can be quickly and efficiently retrieved from in order to provide a user with a response to a query.

Referring to claims 16, 25, 26, 45 and 56, Paik/Baclawski/Noy/Halpin fails to explicitly disclose the further limitation wherein the relationship between the object and process takes the form of the process being an action that acts upon the object. Chakkour discloses extracting information contained in articles [scientific texts] including facts expressed in an article's natural language [natural language processing], including

the further limitation wherein the relationship between the object and process takes the form of the process being an action that acts upon the object (Chakkour: see Section 2: From Syntactic to Conceptual Analysis and Halpin: see page 6, 1st paragraph – the listed examples).

It would have been obvious to one of ordinary skill in the art to select articles in which to extract facts and to store the facts disclosed by Chakkour in the manner applied to the concept-relation-concept triples disclosed by Paik/Baclawski/Noy/Halpin. One would have been motivated to do so in order to form a knowledge base in which information can be quickly and efficiently retrieved from in order to provide a user with a response to a query.

Referring to claim 17, Paik/Baclawski/Noy/Halpin fails to explicitly disclose the further limitation wherein the object can come from a gene, protein, cell, or organism. Chakkour discloses extracting information contained in articles [scientific texts] including facts expressed in an article's natural language [natural language processing], including the further limitation wherein the object can come from a gene, protein, cell, or organism (Chakkour: see Section 2: From Syntactic to Conceptual Analysis).

It would have been obvious to one of ordinary skill in the art to select articles in which to extract facts and to store the facts disclosed by Chakkour in the manner applied to the concept-relation-concept triples disclosed by Paik/Baclawski/Noy/Halpin. One would have been motivated to do so in order to form a knowledge base in which information can be quickly and efficiently retrieved from in order to provide a user with a response to a query.

Referring to claim 35, Paik/Baclawski/Noy/Halpin fails to explicitly disclose the further limitation wherein the object is an effector of a plurality of processes and all of these processes are actions that act upon a second object. Chakkour discloses extracting information contained in articles [scientific texts] including facts expressed in an article's natural language [natural language processing], including the further limitation wherein the object is an effector of a plurality of processes and all of these processes are actions that act upon a second object (Chakkour: see Section 2: From Syntactic to Conceptual Analysis and Halpin: see page 6, 1st paragraph – the listed examples).

It would have been obvious to one of ordinary skill in the art to select articles in which to extract facts and to store the facts disclosed by Chakkour in the manner applied to the concept-relation-concept triples disclosed by Paik/Baclawski/Noy/Halpin. One would have been motivated to do so in order to form a knowledge base in which information can be quickly and efficiently retrieved from in order to provide a user with a response to a query.

Referring to claim 36, Paik/Baclawski/Noy/Halpin fails to explicitly disclose the further limitation wherein the article's natural language includes a first and second finding and wherein the first finding comprises the process and object and the object includes the second finding. Chakkour discloses extracting information contained in articles [scientific texts] including facts expressed in an article's natural language [natural language processing], including the further limitation wherein the article's natural language includes a first and second finding and wherein the first finding

comprises the process and object and the object includes the second finding (Chakkour: see Section 2: From Syntactic to Conceptual Analysis and Halpin: see page 6, 1st paragraph – the listed examples).

It would have been obvious to one of ordinary skill in the art to select articles in which to extract facts and to store the facts disclosed by Chakkour in the manner applied to the concept-relation-concept triples disclosed by Paik/Baclawski/Noy/Halpin. One would have been motivated to do so in order to form a knowledge base in which information can be quickly and efficiently retrieved from in order to provide a user with a response to a query.

Referring to claim 49, Paik/Baclawski/Noy/Halpin fails to explicitly disclose the further limitation wherein the extracted information includes metadata on the facts. Chakkour discloses extracting information contained in articles [scientific texts] including facts expressed in an article's natural language [natural language processing], wherein the facts comprise a first and second physical object that are related by a process (see abstract; Section 2: From Syntactic to Conceptual Analysis; Section 3: The System Using Case-Based Reasoning; and Section 4: Case Retrieval), including the further limitation wherein the extracted information includes metadata on the facts (Chakkour: see Section 2: From Syntactic to Conceptual Analysis).

It would have been obvious to one of ordinary skill in the art to extract metadata as disclosed by Chakkour from the documents disclosed by Paik/Baclawski/Noy/Halpin. One would have been motivated to do so in order to form a knowledge base in which

information can be quickly and efficiently retrieved from in order to provide a user with a response to a query.

Referring to claims 50 and 53, Paik/Baclawski/Noy/Halpin fails to explicitly disclose the further limitation of the facts comprise as an object and process relationship. Chakkour discloses parsing scientific texts in order to index concepts (see abstract), including the further limitations of:

extracting information contained in articles [scientific texts] including facts expressed in an article's natural language [natural language processing], wherein the facts comprise a first and second physical object that are related by a process (see abstract; Section 2: From Syntactic to Conceptual Analysis; Section 3: The System Using Case-Based Reasoning; and Section 4: Case Retrieval); and

formatting the facts as an object and process relationship for storage in the knowledge representation (see Section 2: From Syntactic to Conceptual Analysis and Section 4: Case Retrieval).

It would have been obvious to one of ordinary skill in the art to select articles in which to extract facts and to store the facts disclosed by Chakkour in the manner applied to the concept-relation-concept triples disclosed by Paik/Baclawski/Noy/Halpin. One would have been motivated to do so in order to form a knowledge base in which information can be quickly and efficiently retrieved from in order to provide a user with a response to a query.

Referring to claim 51, the combination of Paik/Baclawski/Noy/Halpin and Chakkour (hereafter Paik/Baclawski/Noy/Halpin/Chakkour) discloses the system of

claim 12, wherein the relationship between the object and process takes the form of the process being an action that acts upon the object (Chakkour: see Section 2: From Syntactic to Conceptual Analysis and Halpin: see page 6, 1st paragraph – the listed examples).

Referring to claim 52, Paik/Baclawski/Noy/Halpin/Chakkour discloses the system of claim 12, wherein the object can come from a gene, protein, cell, or organism (Chakkour: see Section 2: From Syntactic to Conceptual Analysis).

Response to Arguments

9. Referring to Applicant's arguments on page 10 of the Remarks in regards to claims 4, 6, 7, 9, 11, 12-27, 35, 36, 48 and 49, the Applicant states the following:

> In regards to claim 4, Applicants respectfully contend that amended claim recites at least 3 claim limitations that are not taught or suggested by Paik. They are addressed individually as follows: 1. formatting the facts for storage in the knowledge representation according to an ontology comprising classes and individuals Paik does not teach or suggest the formatting of facts for storage according to an ontology comprising classes and individuals. 2. verifying that the facts extracted from the selected articles are placed in the correct format for storage in the knowledge representation according to the ontology Examiner admits that Paik does not explicitly disclose the verification of extracted facts for placement in the correct format for storage. Further, Applicants assert that the current amendment is also not disclosed by Paik for it recites that correct format

for storage follows an ontology. 3. storing the formatted facts in the knowledge representation Storage of the formatted facts implicitly requires that the facts be formatted according to the above described ontology. Since Paik does not format the facts according to the above ontology, it therefore cannot disclose the storage of the formatted facts in the knowledge representation system.

Referring to the argument labeled 1, in regards to the newly added limitation of the ontology, the prior art of Baclawski and Noy have been added in order to teach this limitation.

Referring to the argument labeled 2, as stated above in the rejection of the claim above, Baclawski also teaches the verification of facts, while Halpin is still mainly utilized to teach the limitations. First it is noted that the claim does not specifically state that the facts are verified according to the ontology. Furthermore, It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the quality checking steps disclosed by Halpin in order to verify the CRC triples extracted and stored by Paik/Baclawski/Noy. One would have been motivated to do so in order to determine the accuracy of the rules for extraction and thereby increase the ability to provide accurate information to a user. The type of model utilized to verify the format is not considered to be a patentable distinction.

Referring to the argument labeled 3, as stated in the rejection of the claim above, Baclawski teaches the concept of formatting the facts utilizing an ontology and storing the formatted facts. However, it is noted that Paik is also still considered to teach the concept of storing formatted facts, since Paik discloses the translation of CRC's to a

Knowledge Representation (KR) scheme through the use of a KR Format Guideline 112 as a knowledge base by converting the CRCs to a format which can be accepted by the KR scheme (see column 21, lines 13-27).

Referring to Applicant's arguments on pages 11-12 of the Remarks in regards to clam 12, the rejections are maintained for the reasons stated above in regards to claim 4.

Referring to Applicant's arguments on page 12 of the Remarks in regards to claims 7 and 8, the rejections are maintained for the reasons stated above in regards to claim 4.

Referring to Applicant's arguments on pages 37-47 of the Remarks in regards to clams 37-47, the rejections are maintained for the reasons stated above in regards to claim 4.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY LOVEL whose telephone number is (571)272-2750. The examiner can normally be reached on 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art Unit 2167

/Kimberly Lovel/
Examiner
Art Unit 2167

9 February 2010
/KL/